Ordering number:ENN2437B

PNP/NPN Epitaxial Planar Silicon Transistors



2SA1538/2SC3953

High-Definition CRT Display Video Output Applications

Applications

- High-definition CRT display video output, wide-band amplifier.

Features

- High f_T : f_T=400MHz.
- High breakdown voltage : V_{CEO}=120Vmin.
- Small reverse transfer capacitance and excellent HF response : Cre=1.7pF/NPN, 2.2pF/PNP.
- Complementary PNP and NPN types.
- Adoption of FBET process.
- Micaless type : TO-126 plastic package.

Package Dimensions

unit:mm

2042B

[2SA1538/2SC3953]

1 : Emitter
2 : Collector
3 : Base
SANYO : TO-126ML

( ) : 2SA1538

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)120	V
Collector-to-Emitter Voltage	V_{CEO}		(–)120	V
Emitter-to-Base Voltage	V_{EBO}		(–)3	V
Collector Current	I_C		(–)200	mA
Peak Collector Current	I_{CP}		(–)400	mA
Collector Dissipation	P_C		1.3	W
		Tc=25˚C	8	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)80V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)2V, I_C=0			(–)1.0	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)10V, I_C=(–)10mA	40*		320*	
	$h_{FE}2$	V_{CE}=(–)10V, I_C=(–)100mA	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		400		MHz

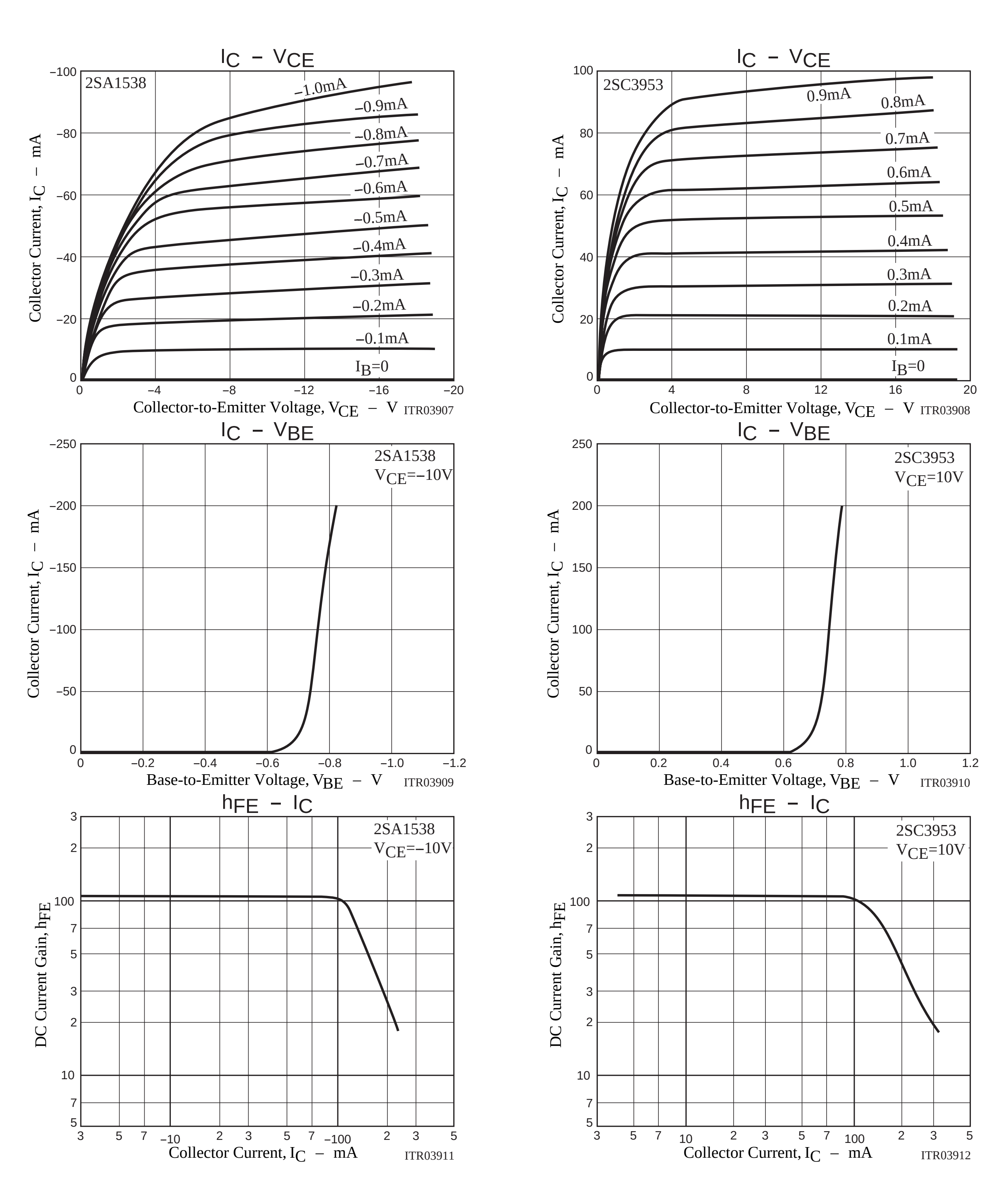
* $h_{FE}1$: The 2SA1538/2SC3953 are classified by 50mA h_{FE} as follows :

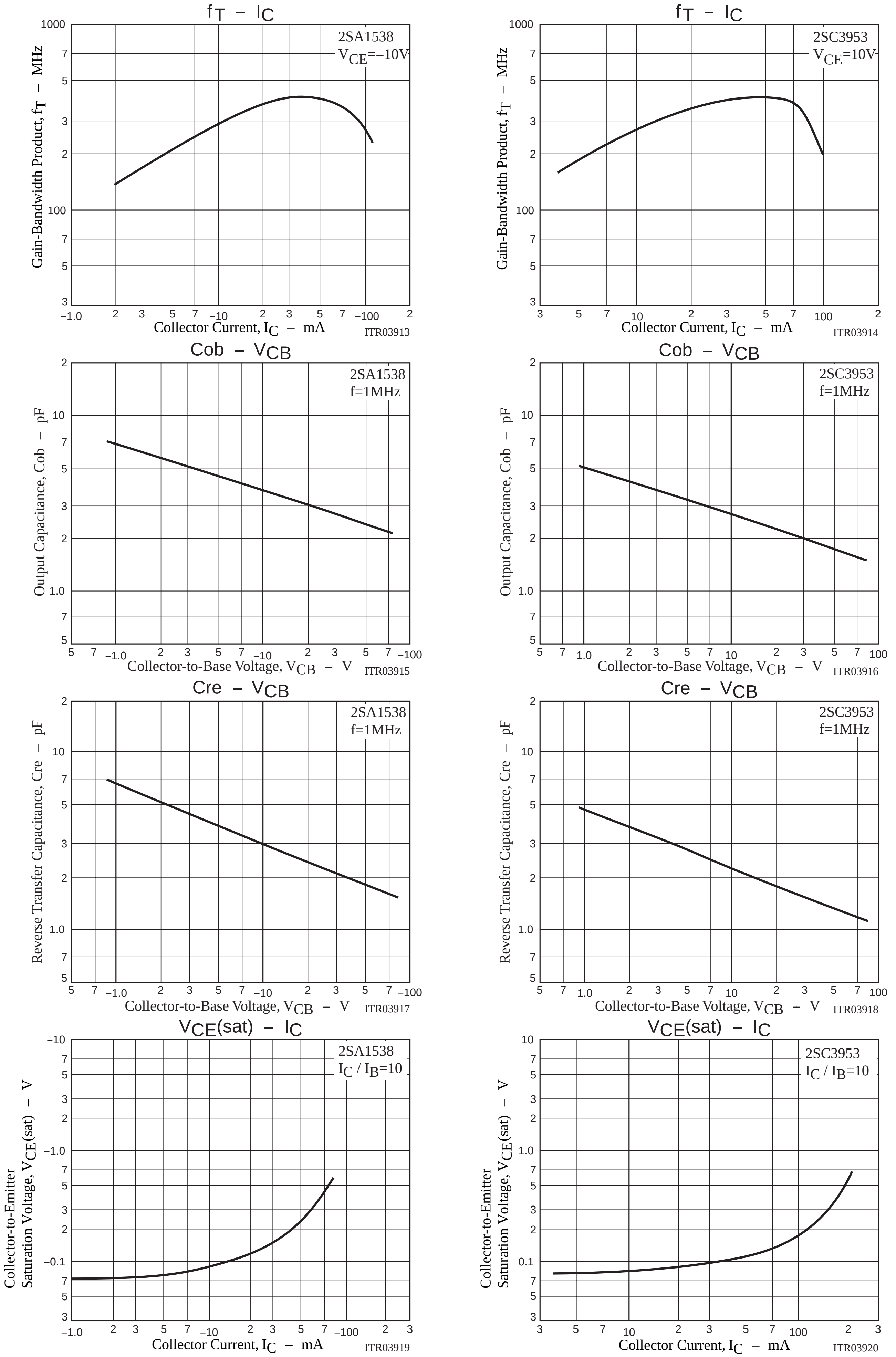
Continued on next page.

Rank	C	D	E	F
h_{FE}	40 to 80	60 to 120	100 to 200	160 to 320

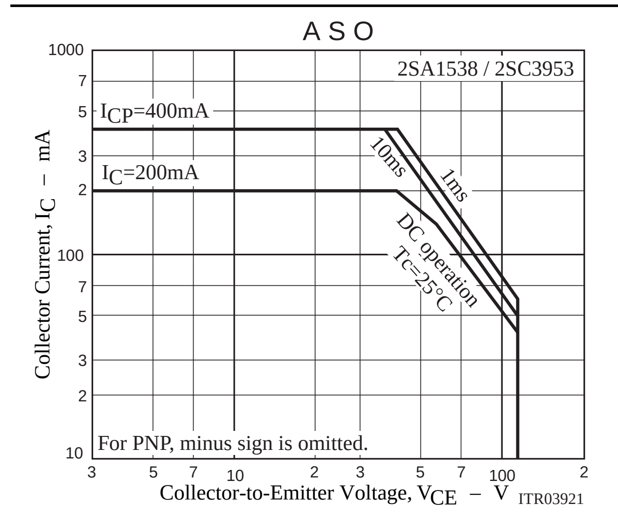
Continued from preceding page.

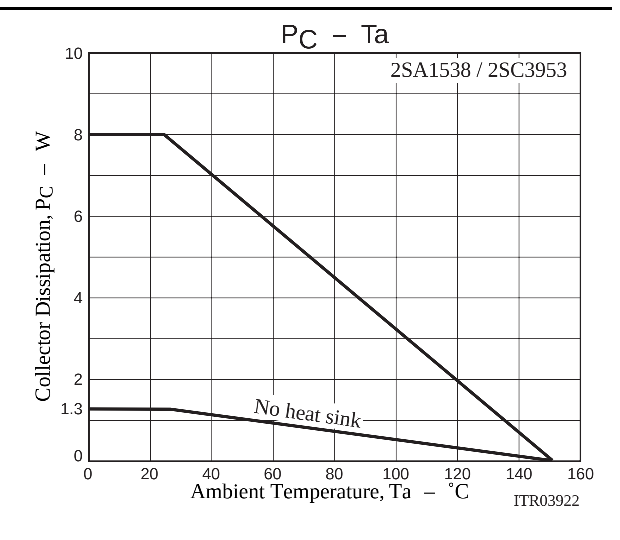
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		2.1		pF
				(2.8)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		1.7		pF
				(2.2)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)30mA, I_B=(–)3mA			(–)1.0	V
Emitter-to-Base Saturation Voltage	$V_{BE(sat)}$	I_C=(–)30mA, I_B=(–)3mA			(–)1.0	V





fT – IC
2SA1538
VCE=–10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03913
fT – IC
2SC3953
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03914
Cob – VCB
2SA1538
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03915
Cob – VCB
2SC3953
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03916
Cre – VCB
2SA1538
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03917
Cre – VCB
2SC3953
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03918
VCE(sat) – IC
2SA1538
IC / IB=10
Collector-to-Emitter
Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03919
VCE(sat) – IC
2SC3953
IC / IB=10
Collector-to-Emitter
Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03920





This catalog provides information as of May, 2002. Specifications and information herein are subject to change without notice.